FIG. 1

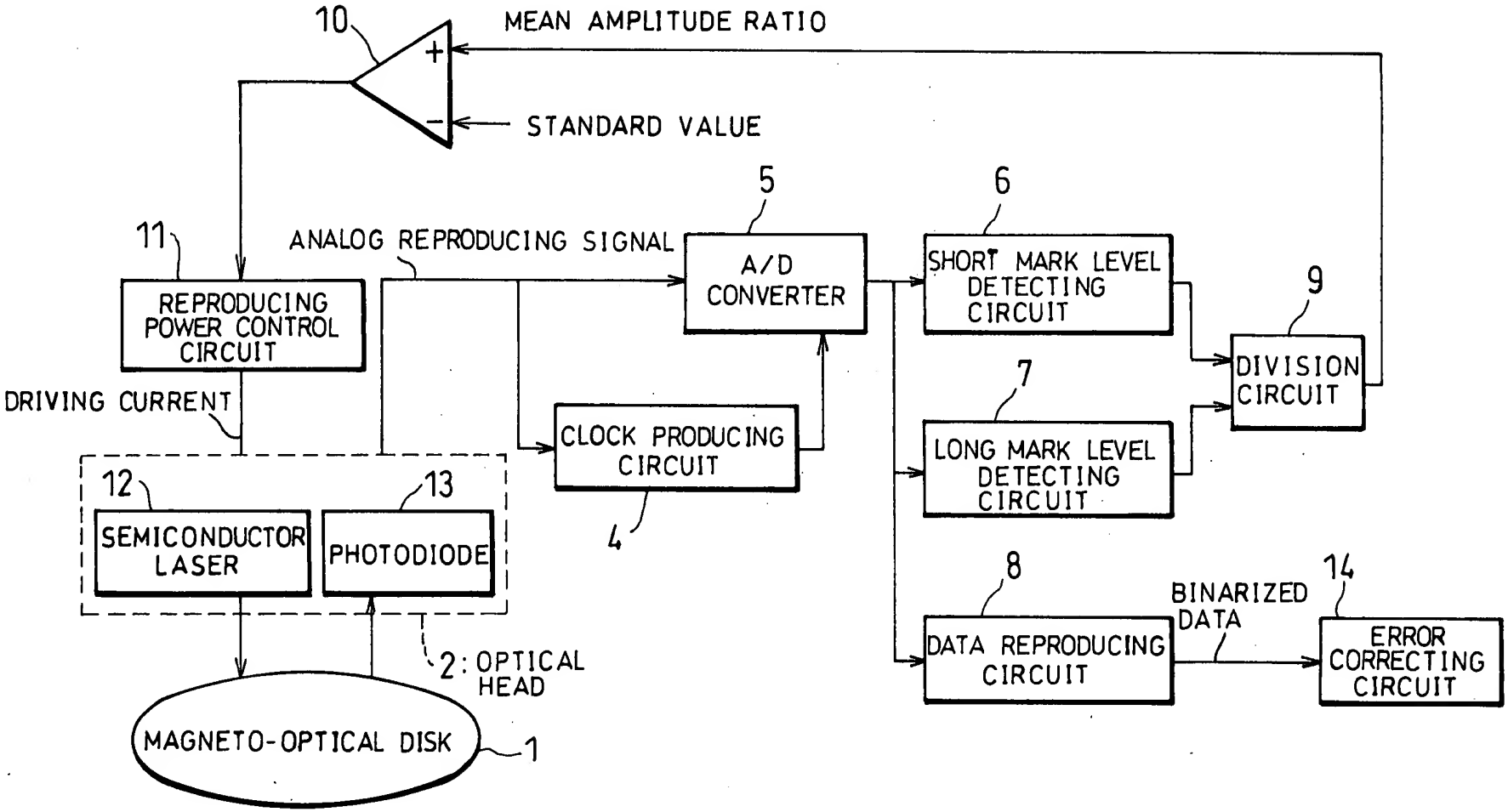


FIG. 2

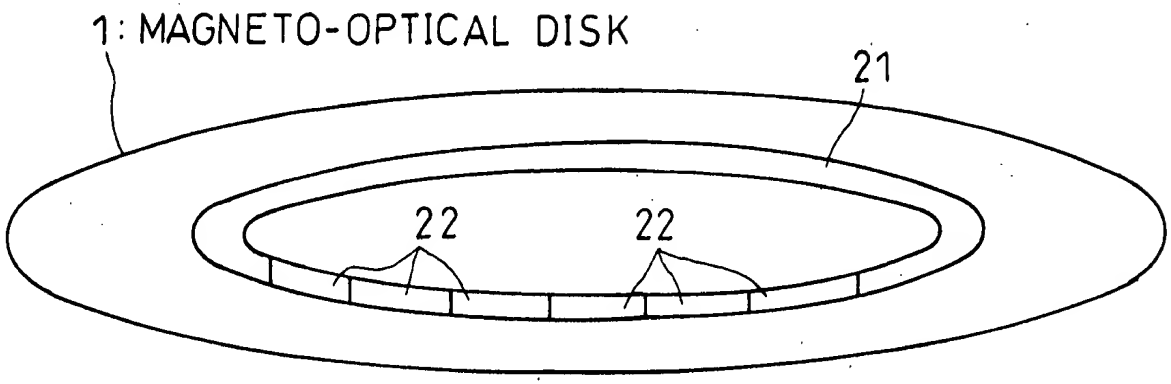


FIG. 3

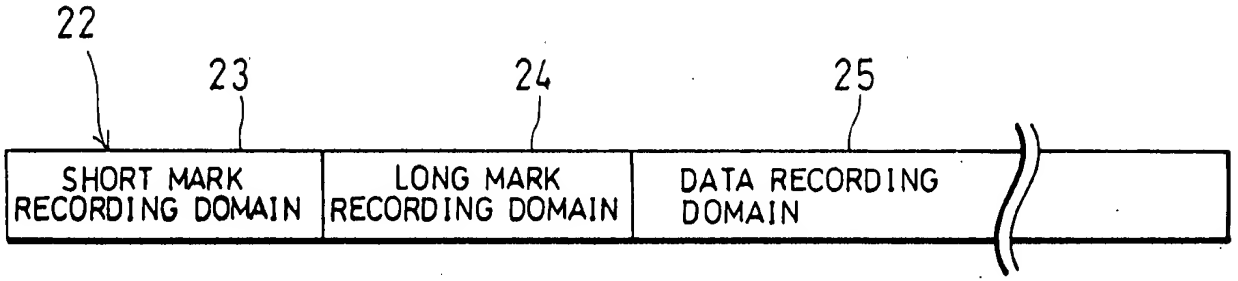

22
23
24
25
SHORT MARK RECORDING DOMAIN
LONG MARK RECORDING DOMAIN
DATA RECORDING DOMAIN

FIG.4

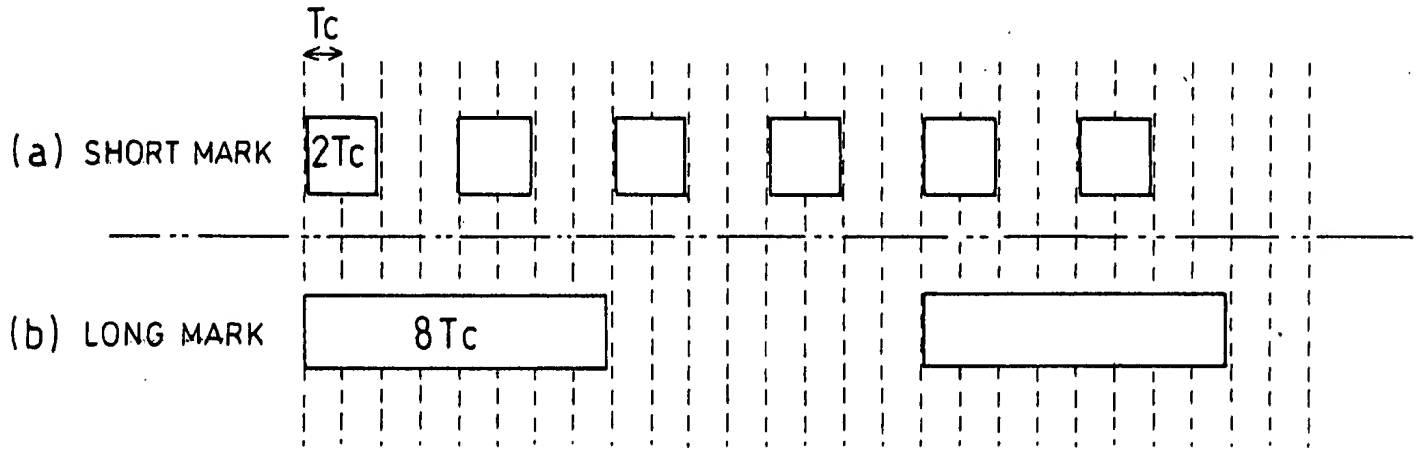


FIG. 5

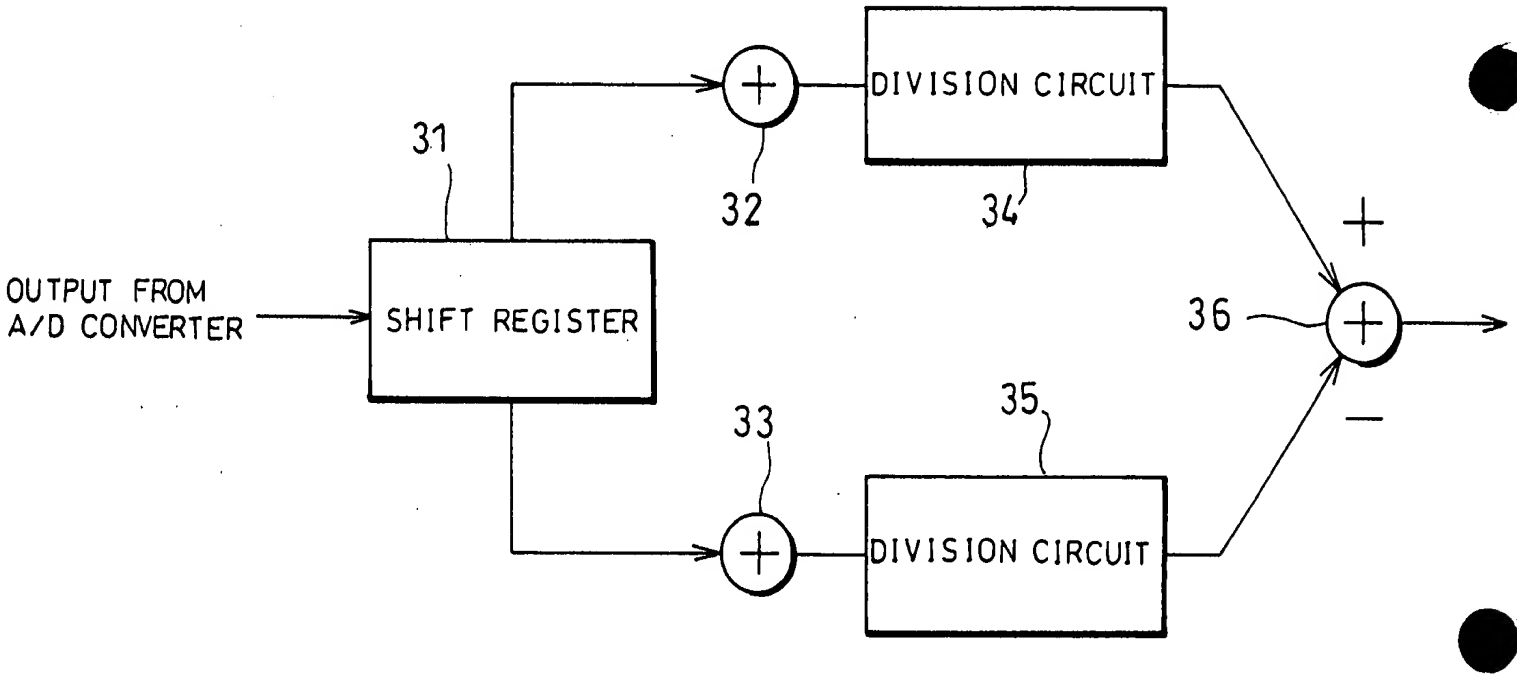


FIG. 6

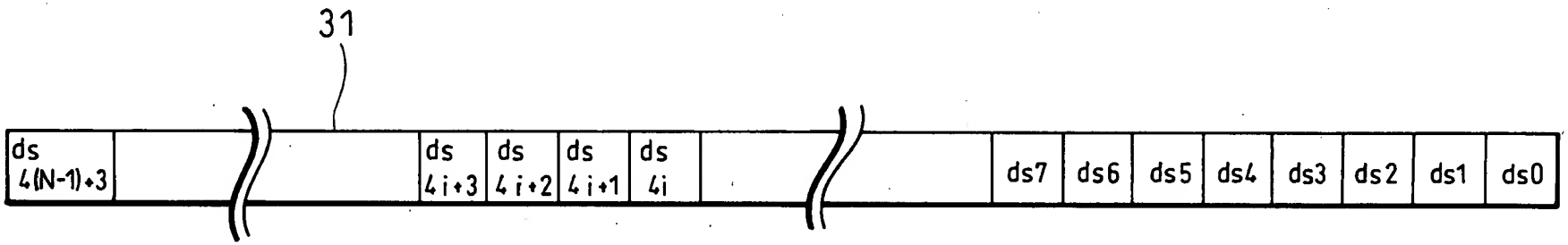

31
ds 4(N-1)+3
ds 4i+3
ds 4i+2
ds 4i+1
ds 4i
ds7
ds6
ds5
ds4
ds3
ds2
ds1
ds0

FIG.7

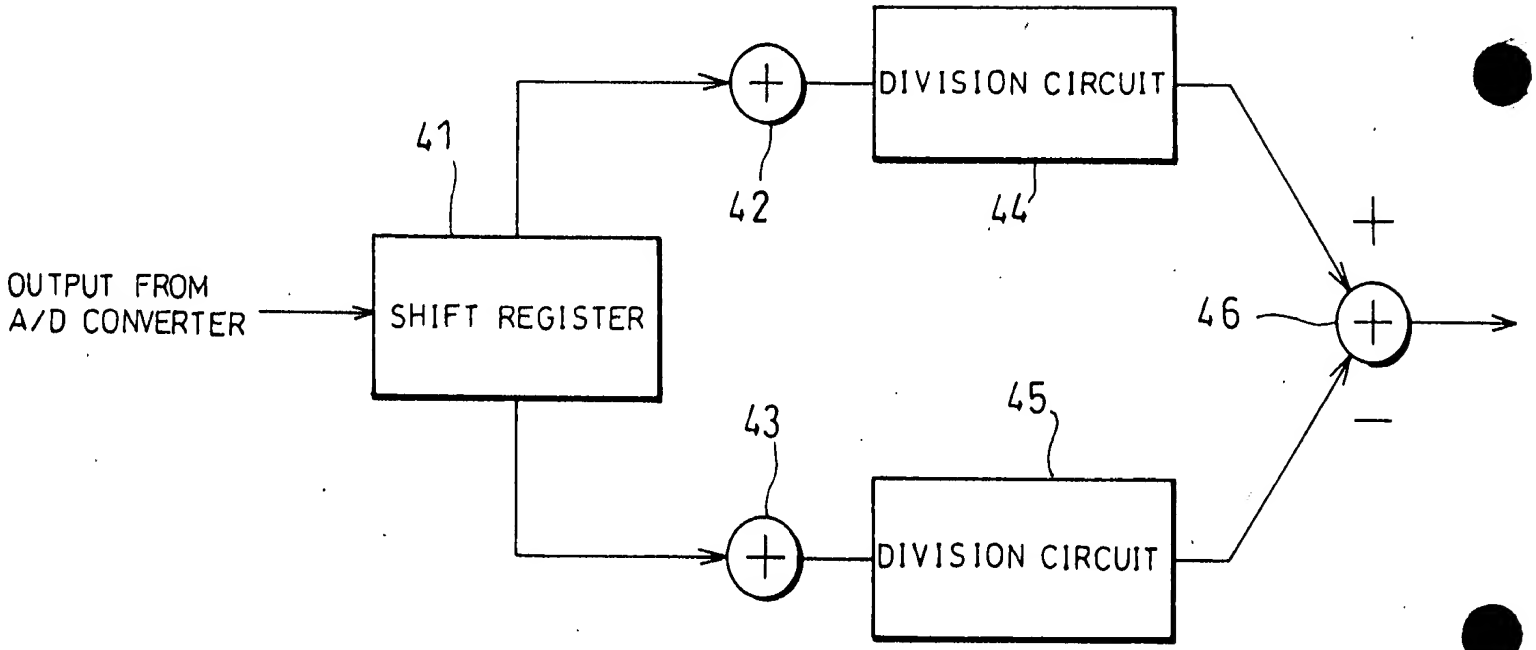


FIG.8

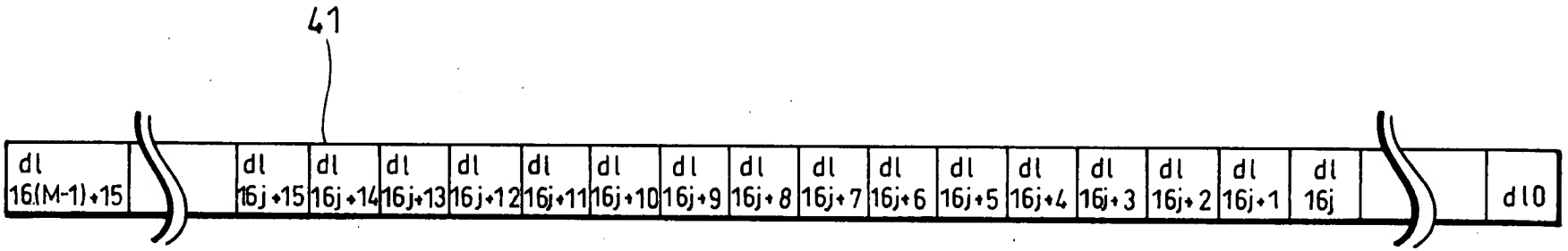

41
dl 16(M-1)+15
dl 16j+15
dl 16j+14
dl 16j+13
dl 16j+12
dl 16j+11
dl 16j+10
dl 16j+9
dl 16j+8
dl 16j+7
dl 16j+6
dl 16j+5
dl 16j+4
dl 16j+3
dl 16j+2
dl 16j+1
dl 16j
d10

FIG. 9

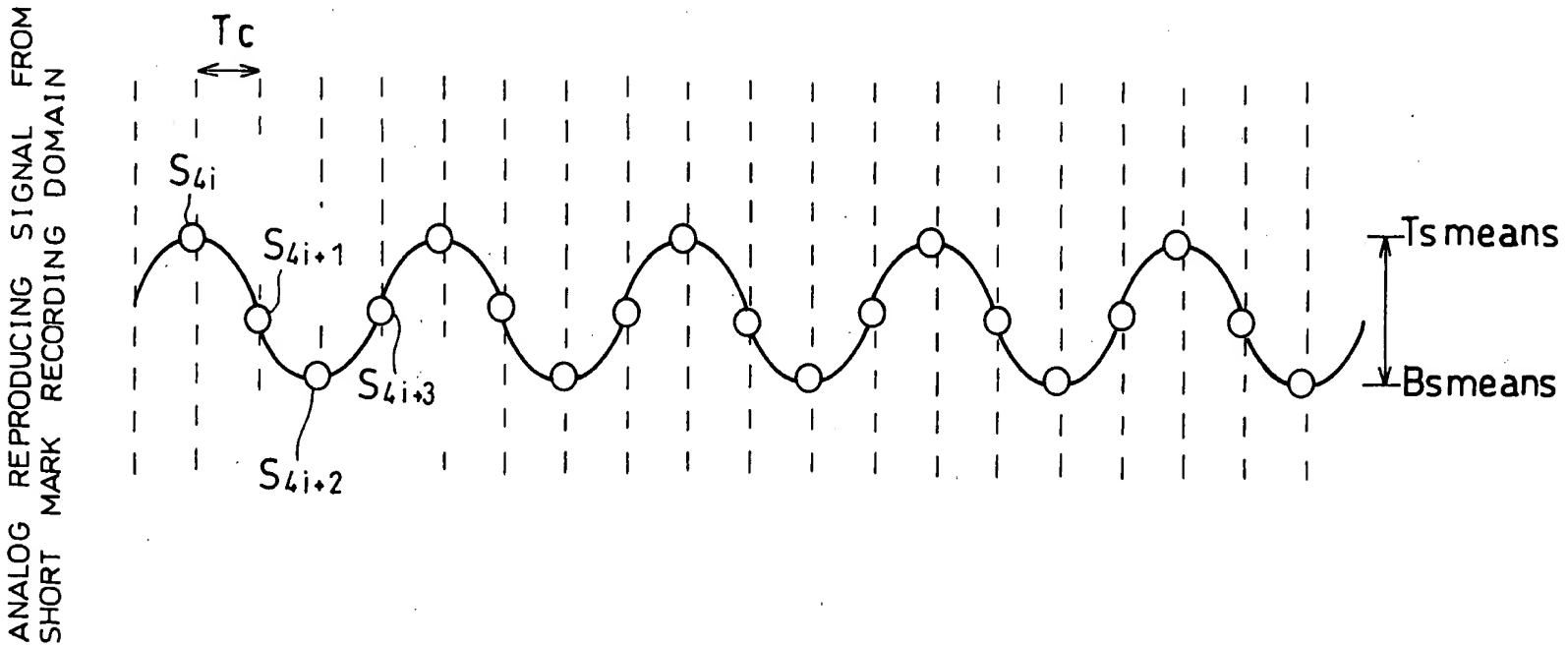

ANALOG REPRODUCING SIGNAL FROM SHORT MARK RECORDING DOMAIN
Tc
S4i
S4i+1
S4i+2
S4i+3
Ts means
Bs means

FIG.10

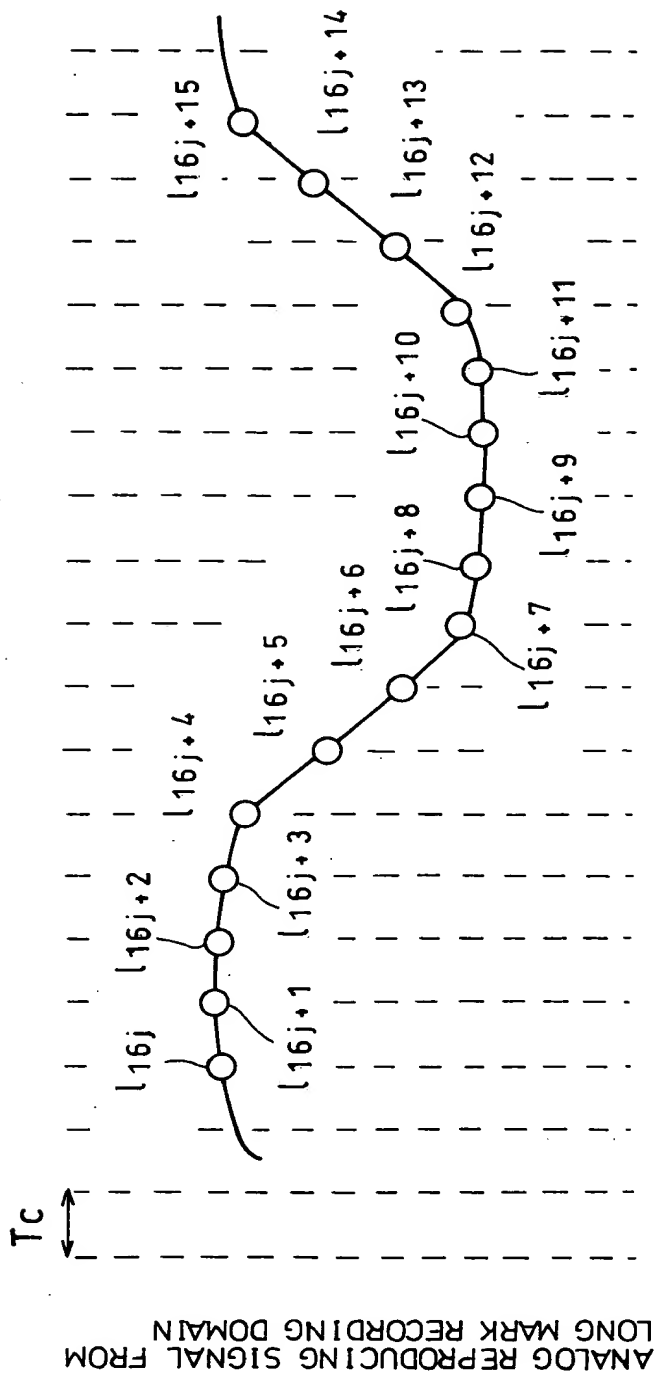

ANALOG REPRODUCING SIGNAL FROM LONG MARK RECORDING DOMAIN
Tc
l16j
l16j+1
l16j+2
l16j+3
l16j+4
l16j+5
l16j+6
l16j+7
l16j+8
l16j+9
l16j+10
l16j+11
l16j+12
l16j+13
l16j+14
l16j+15

FIG. 11

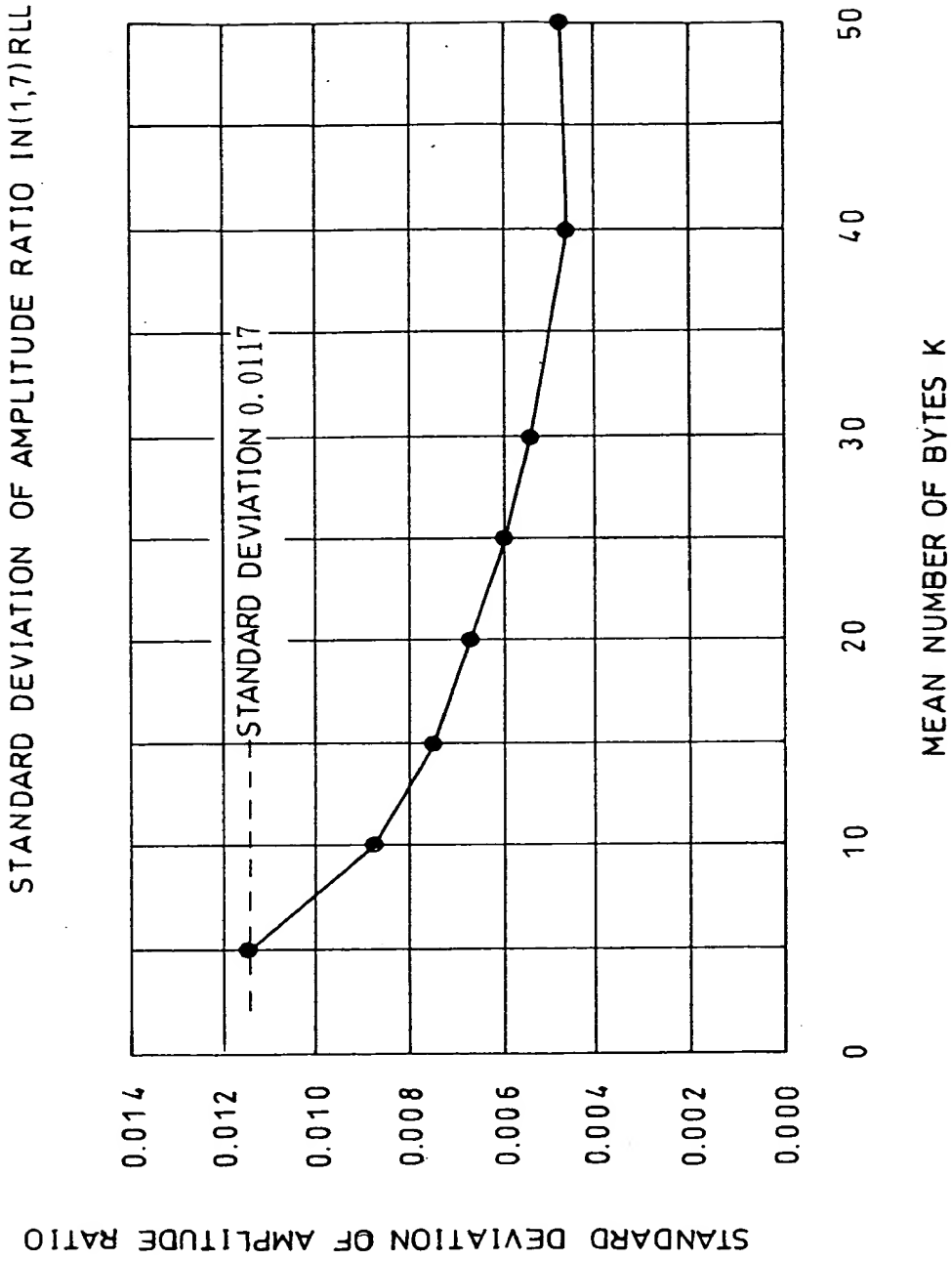

STANDARD DEVIATION OF AMPLITUDE RATIO IN(1,7)RLL
STANDARD DEVIATION 0.0117
STANDARD DEVIATION OF AMPLITUDE RATIO
0.014
0.012
0.010
0.008
0.006
0.004
0.002
0.000
0
10
20
30
40
50
MEAN NUMBER OF BYTES K

FIG.12

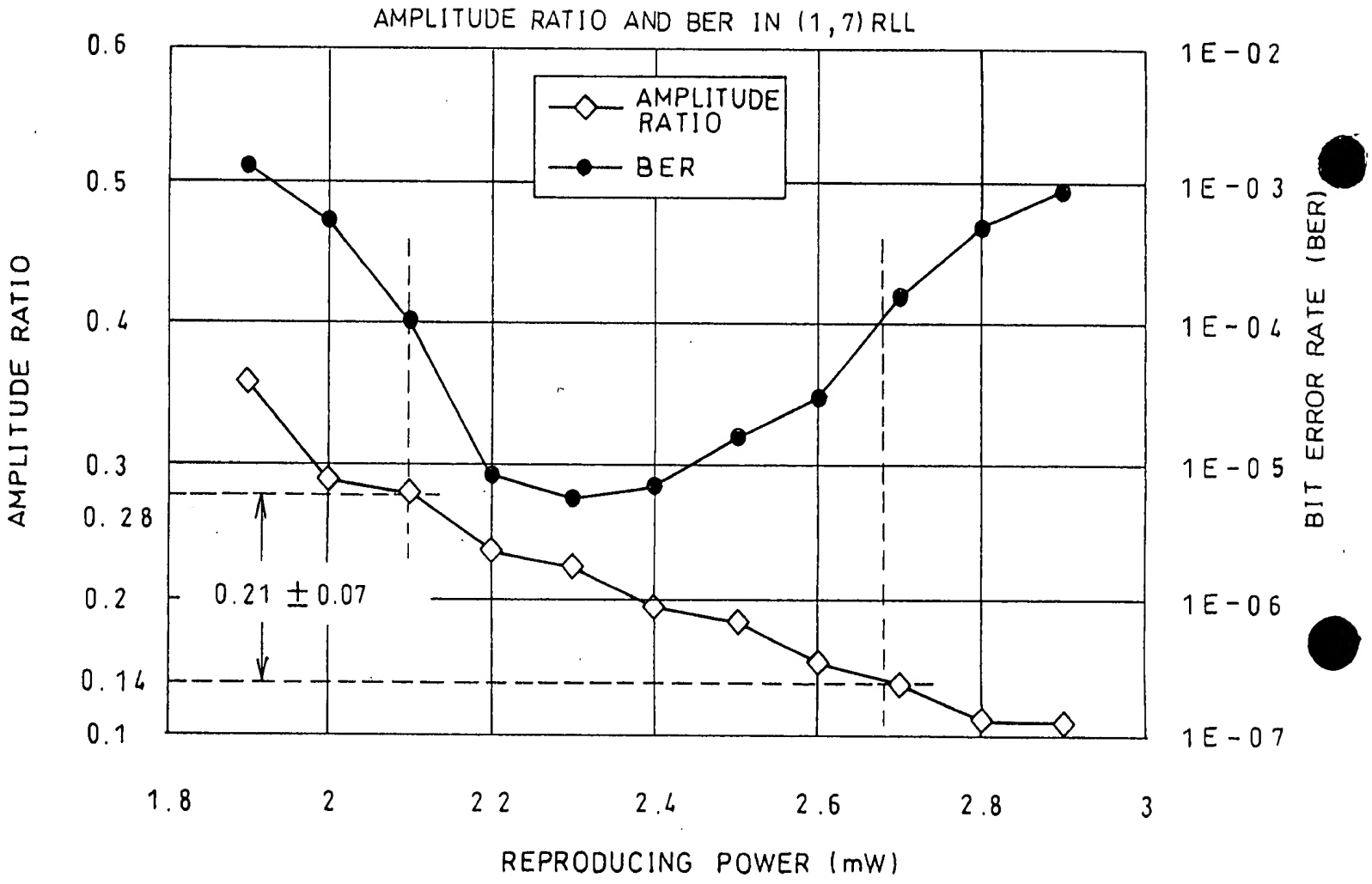

AMPLITUDE RATIO AND BER IN (1,7) RLL
AMPLITUDE RATIO
BER
0.6
0.5
0.4
0.3
0.28
0.2
0.14
0.1
0.21 ± 0.07
AMPLITUDE RATIO
1E-02
1E-03
1E-04
1E-05
1E-06
1E-07
BIT ERROR RATE (BER)
1.8
2
2.2
2.4
2.6
2.8
3
REPRODUCING POWER (mW)

FIG.13

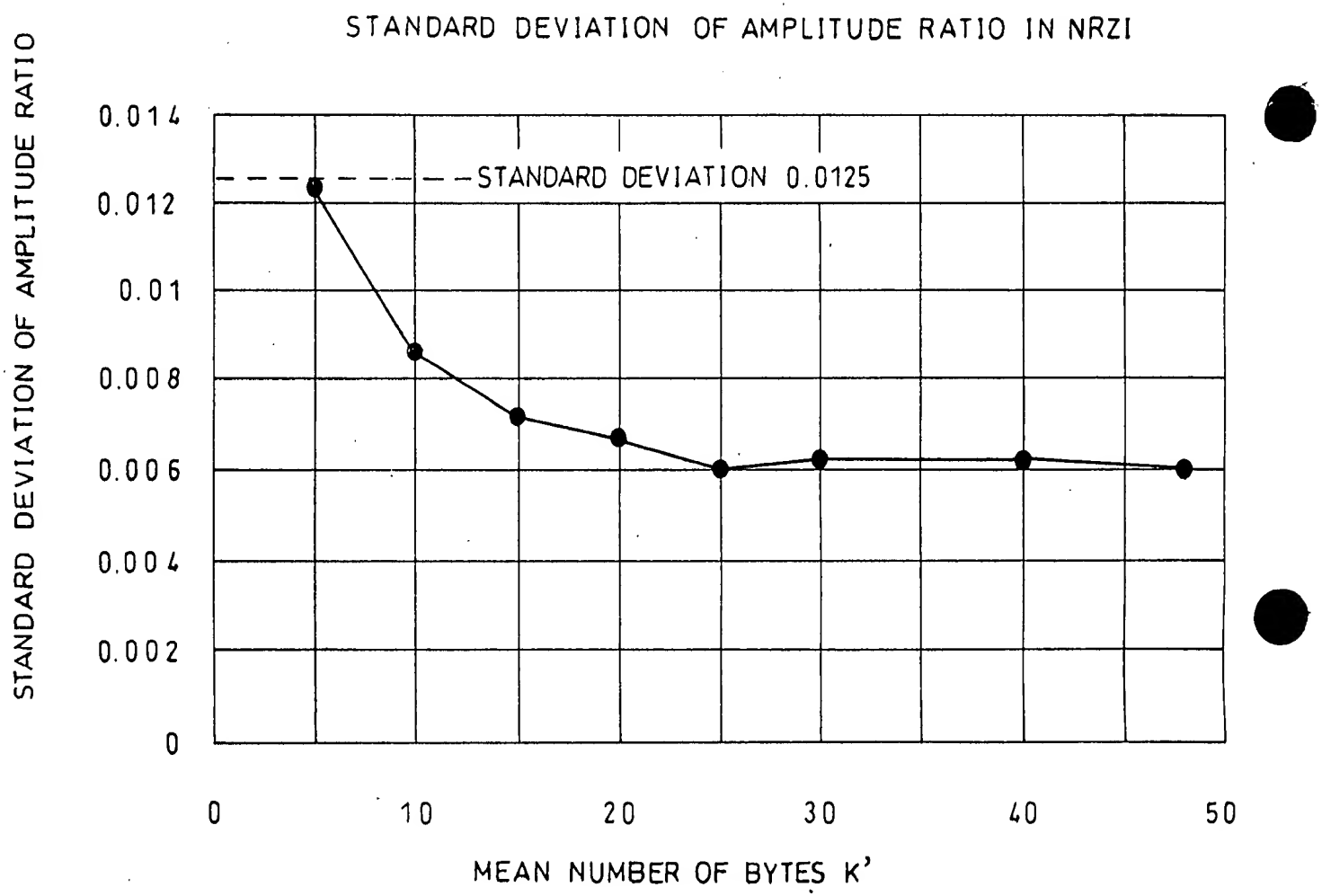

STANDARD DEVIATION OF AMPLITUDE RATIO IN NRZI
STANDARD DEVIATION OF AMPLITUDE RATIO
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
STANDARD DEVIATION 0.0125
0
10
20
30
40
50
MEAN NUMBER OF BYTES K'

FIG.14

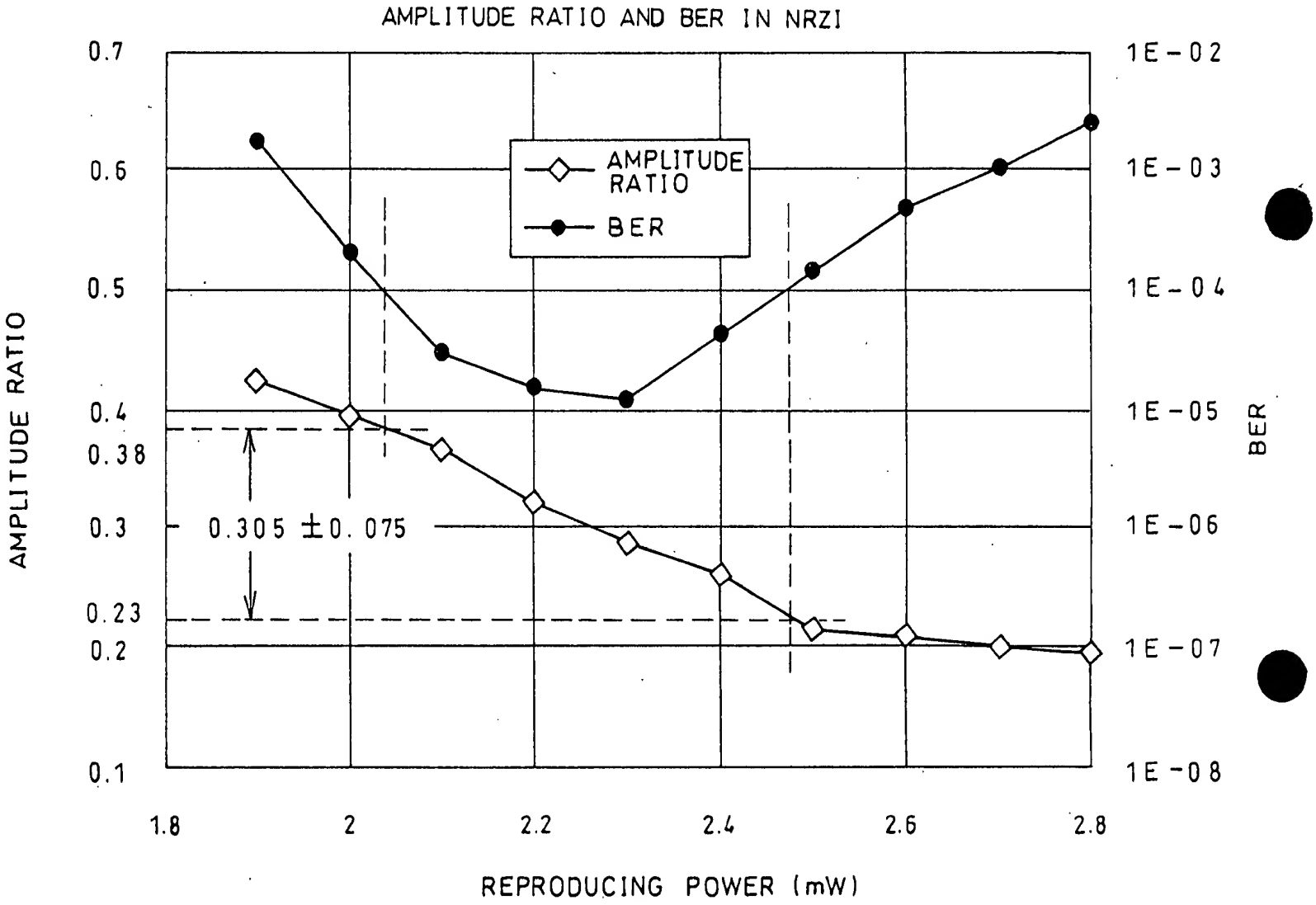

AMPLITUDE RATIO AND BER IN NRZI
AMPLITUDE RATIO
BER
AMPLITUDE RATIO
0.7
0.6
0.5
0.4
0.38
0.3
0.23
0.2
0.1
0.305 ±0.075
1E-02
1E-03
1E-04
1E-05
1E-06
1E-07
1E-08
1.8
2
2.2
2.4
2.6
2.8
REPRODUCING POWER (mW)

FIG.15

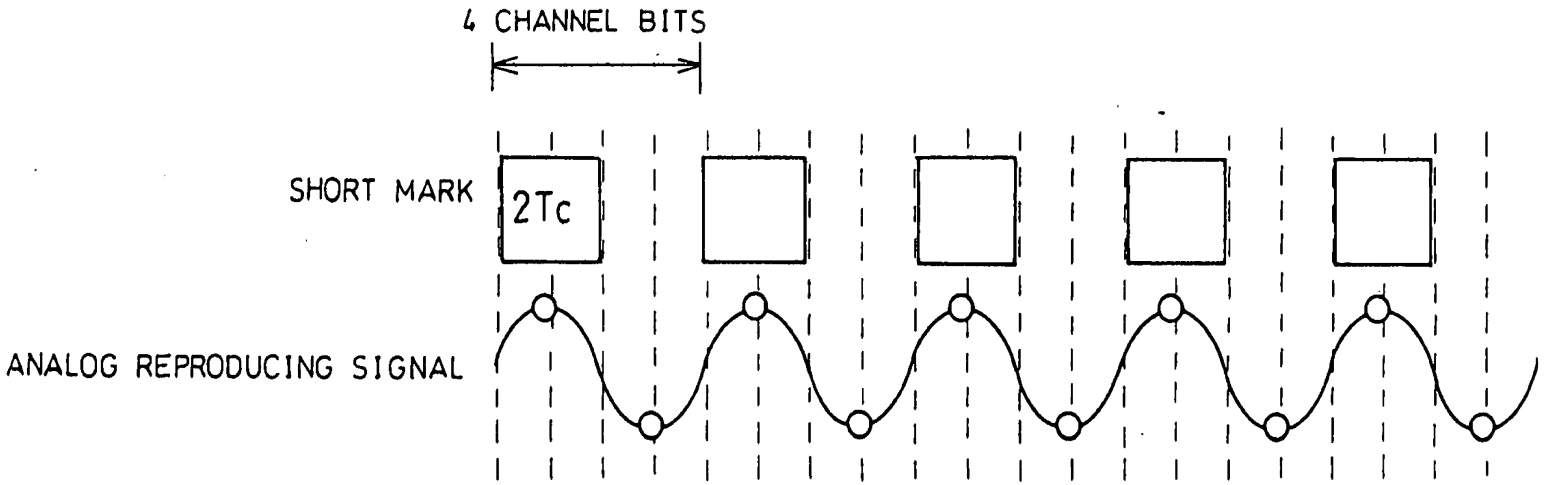


FIG.16

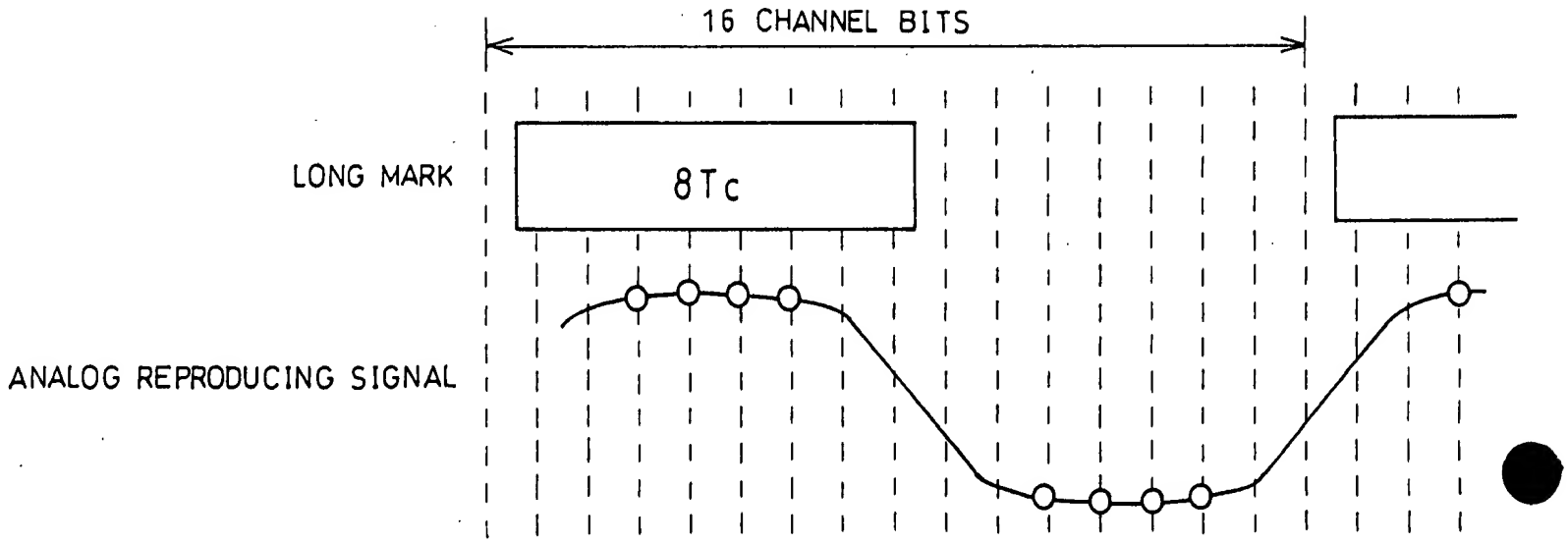


FIG.17

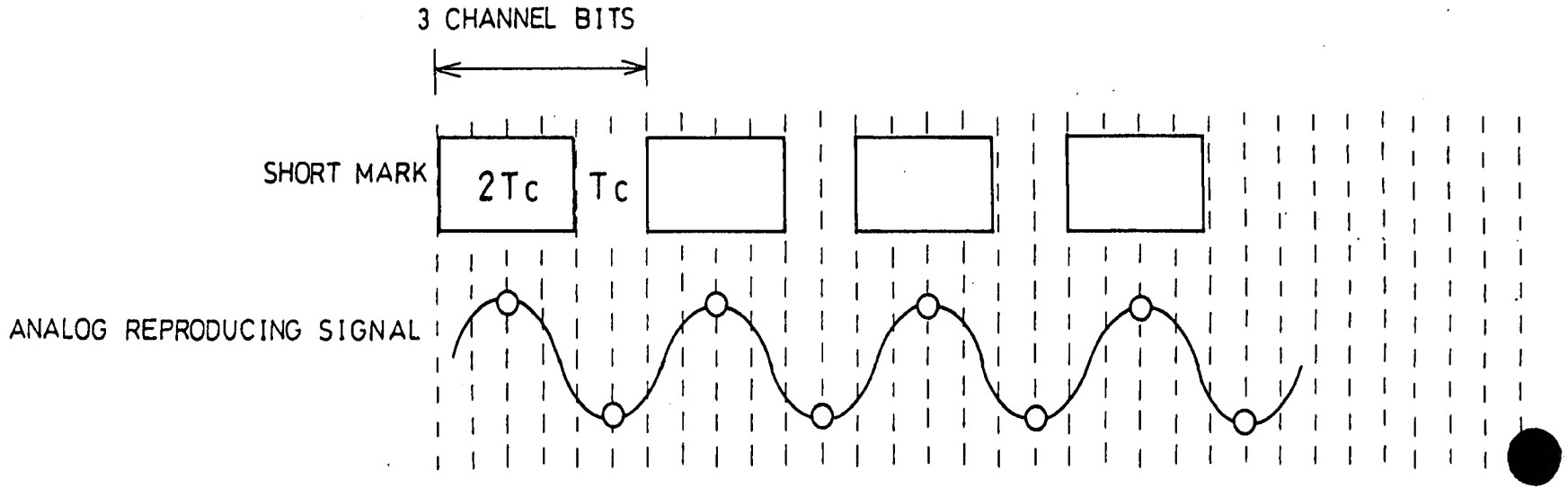


FIG.18

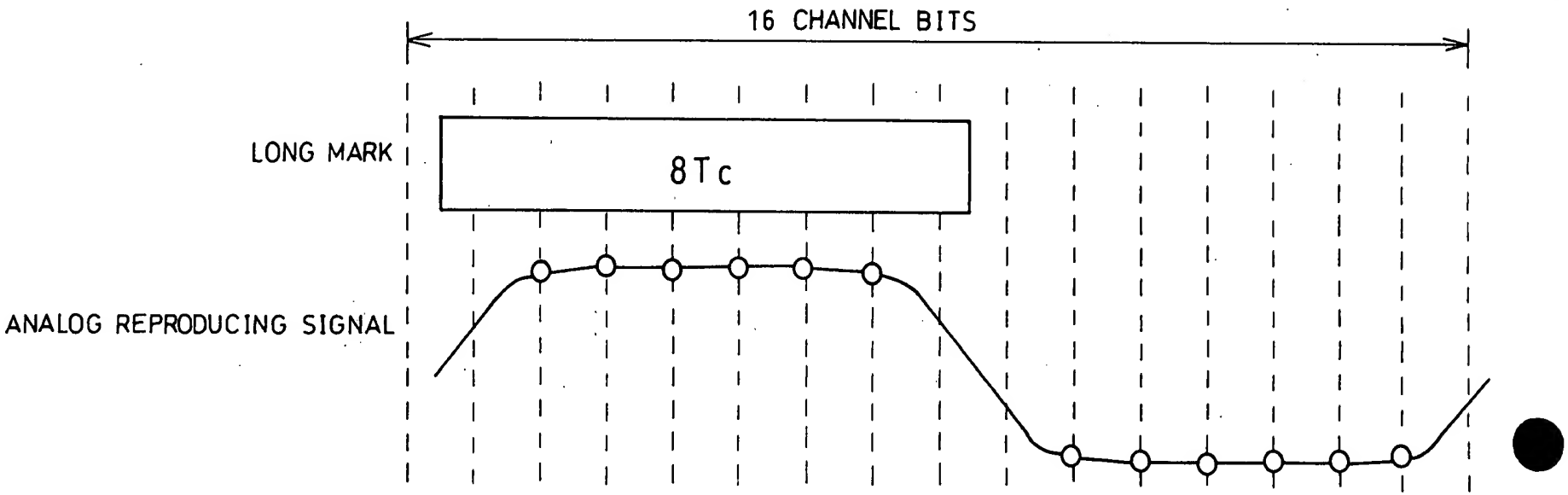


FIG. 19

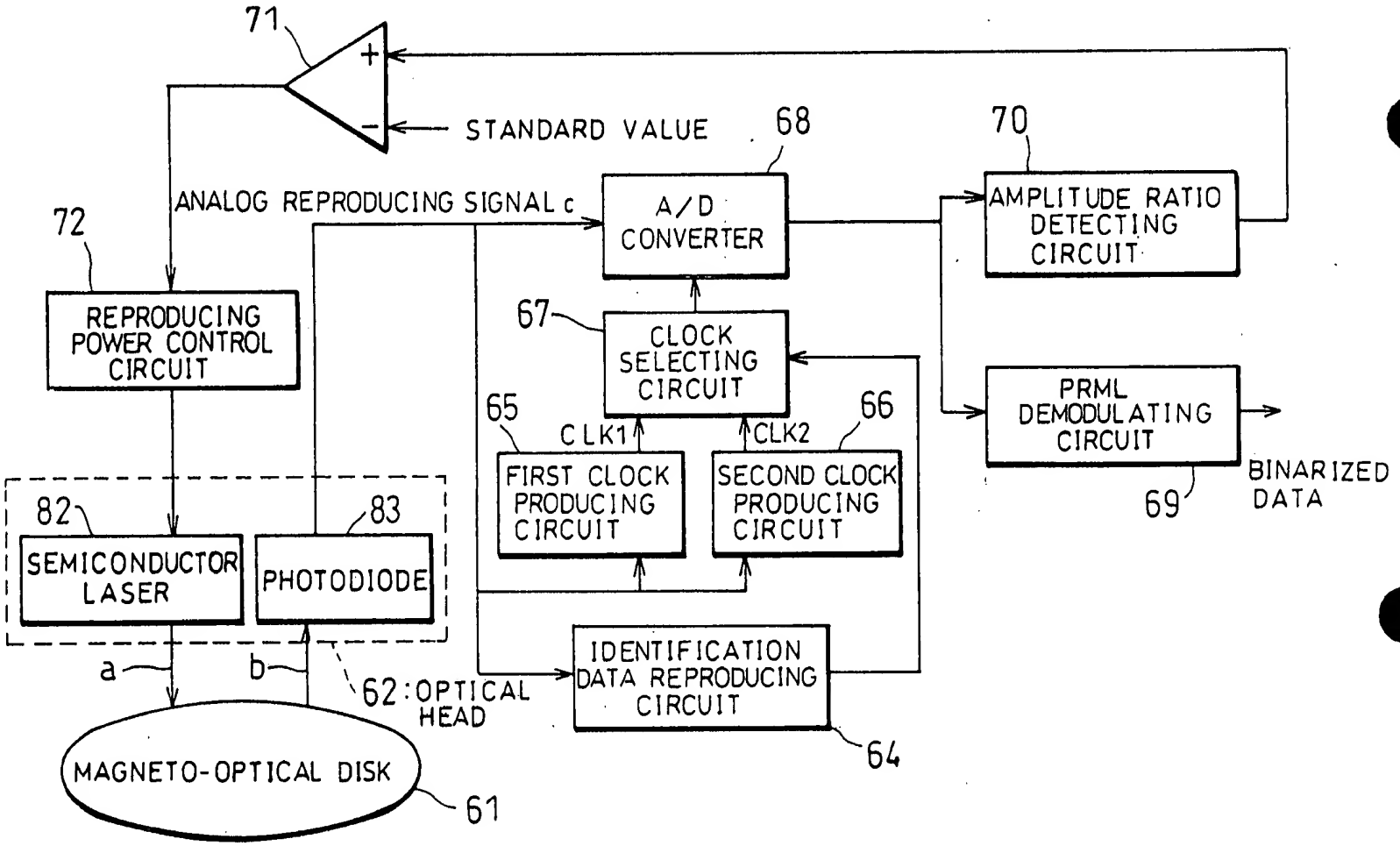

71
+
−
STANDARD VALUE
68
70
ANALOG REPRODUCING SIGNAL c
A/D CONVERTER
AMPLITUDE RATIO DETECTING CIRCUIT
72
REPRODUCING POWER CONTROL CIRCUIT
67
CLOCK SELECTING CIRCUIT
65
66
CLK1
CLK2
FIRST CLOCK PRODUCING CIRCUIT
SECOND CLOCK PRODUCING CIRCUIT
PRML DEMODULATING CIRCUIT
BINARIZED DATA
69
82
83
SEMICONDUCTOR LASER
PHOTODIODE
a
b
62 : OPTICAL HEAD
IDENTIFICATION DATA REPRODUCING CIRCUIT
64
MAGNETO-OPTICAL DISK
61

FIG. 20

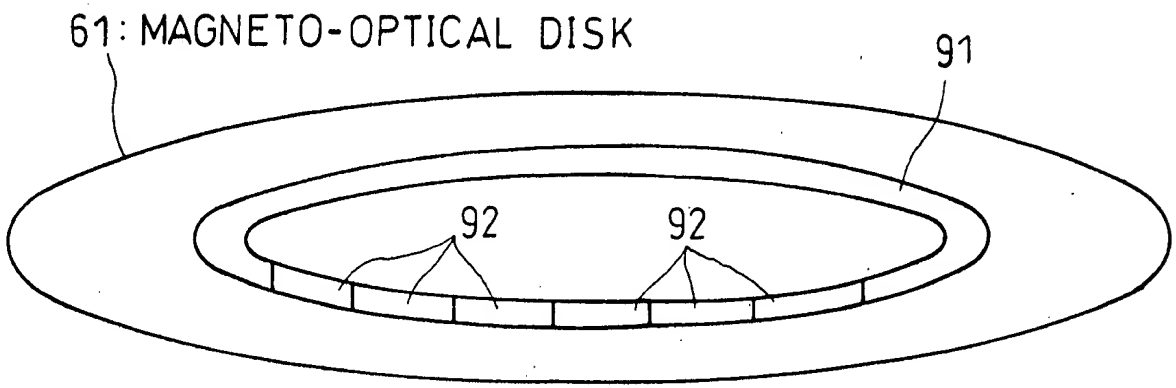


FIG. 21

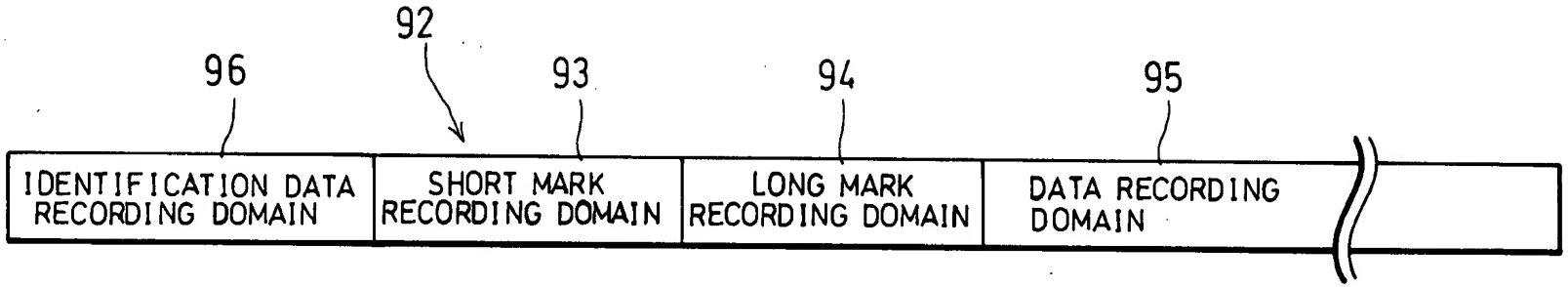

92
96
93
94
95
IDENTIFICATION DATA RECORDING DOMAIN
SHORT MARK RECORDING DOMAIN
LONG MARK RECORDING DOMAIN
DATA RECORDING DOMAIN

FIG.22

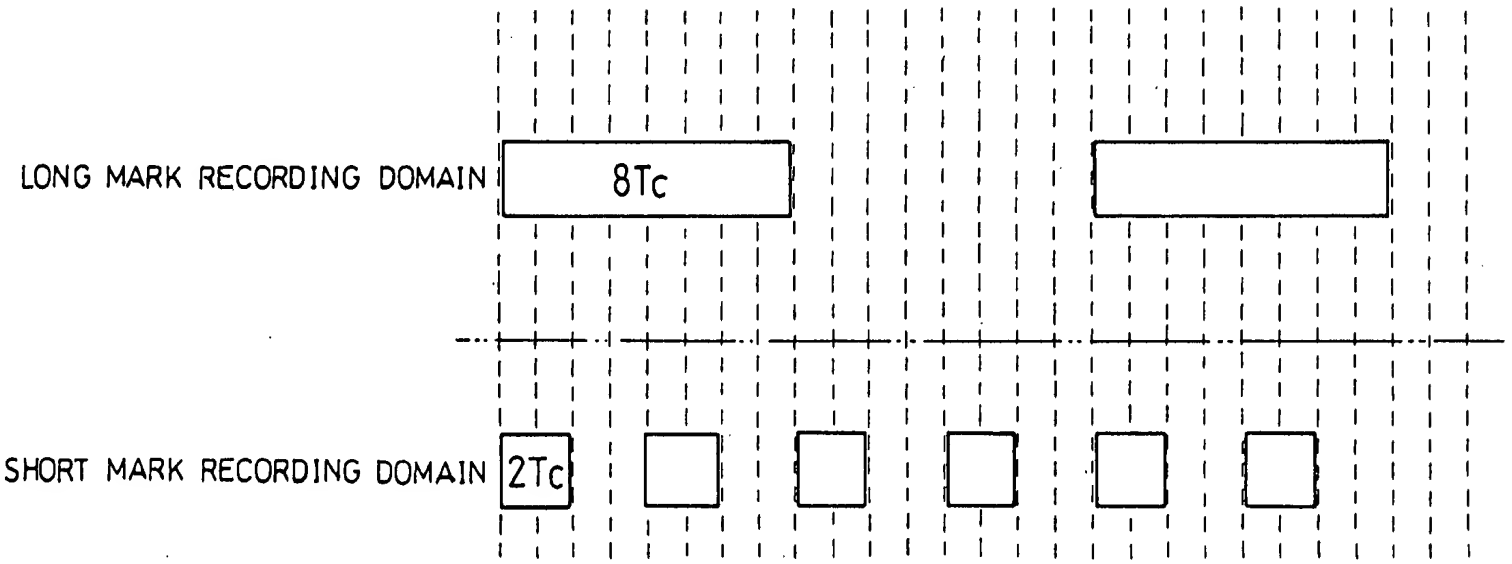

LONG MARK RECORDING DOMAIN
8Tc
SHORT MARK RECORDING DOMAIN
2Tc

FIG. 23

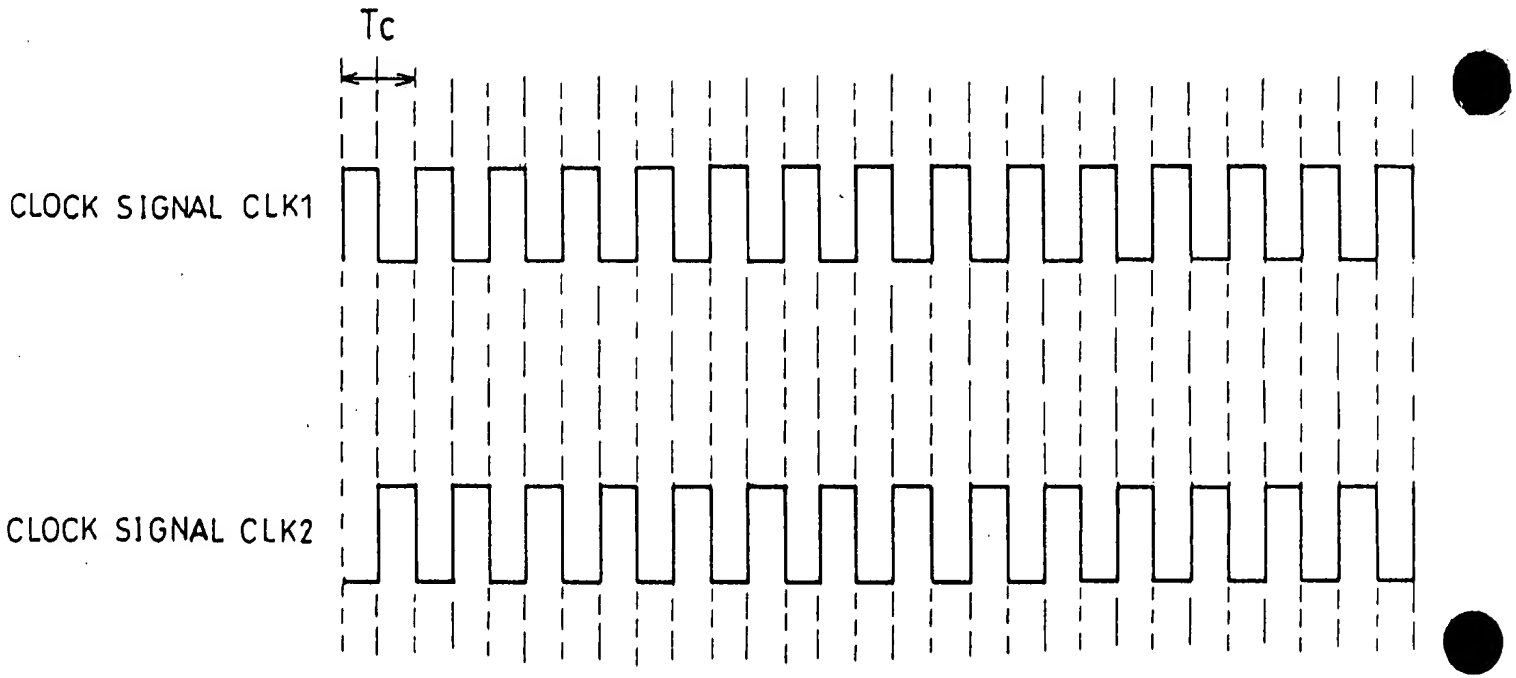


FIG. 24

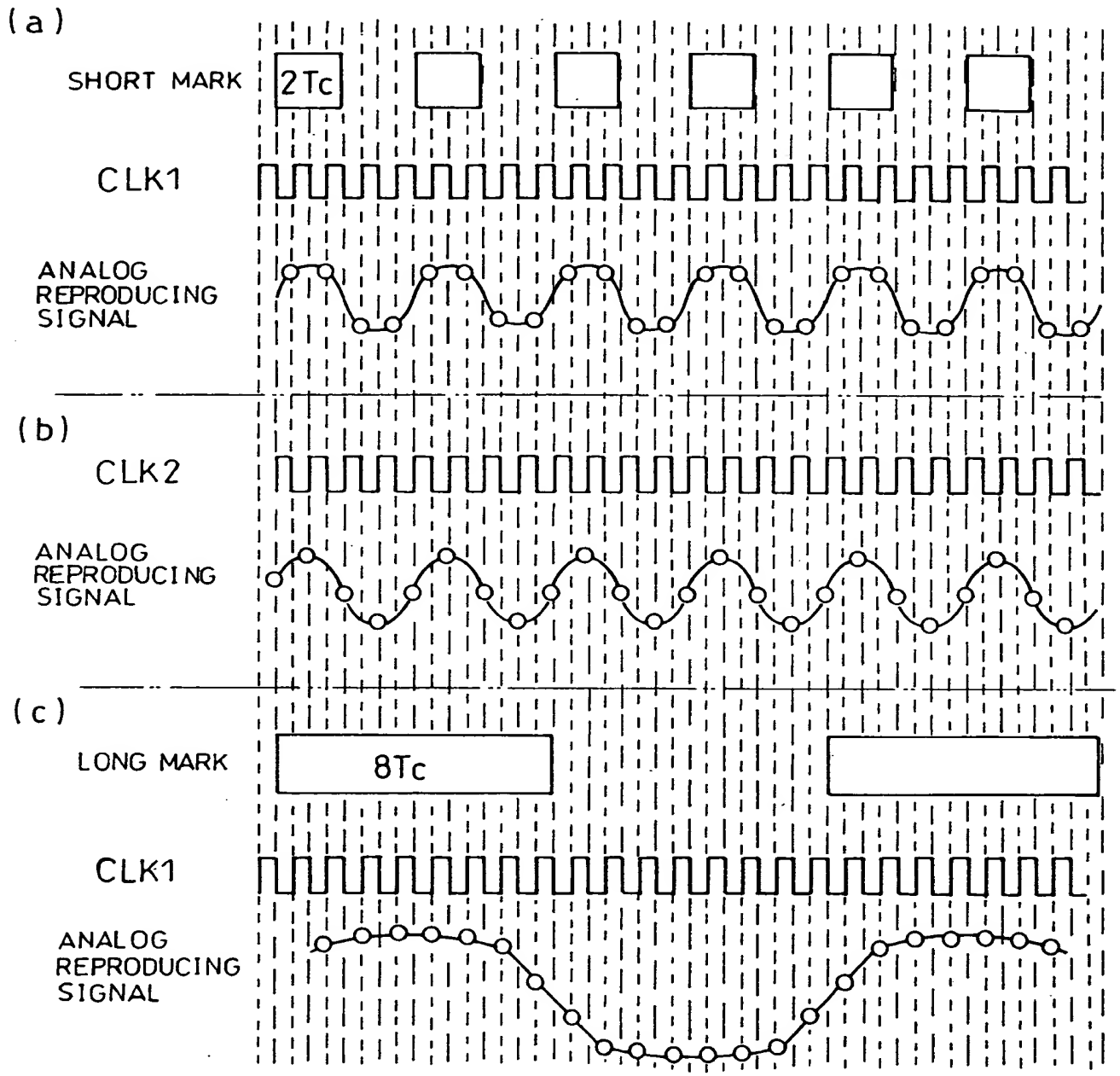

(a)
SHORT MARK
2Tc
CLK1
ANALOG REPRODUCING SIGNAL
(b)
CLK2
ANALOG REPRODUCING SIGNAL
(c)
LONG MARK
8Tc
CLK1
ANALOG REPRODUCING SIGNAL

FIG.25

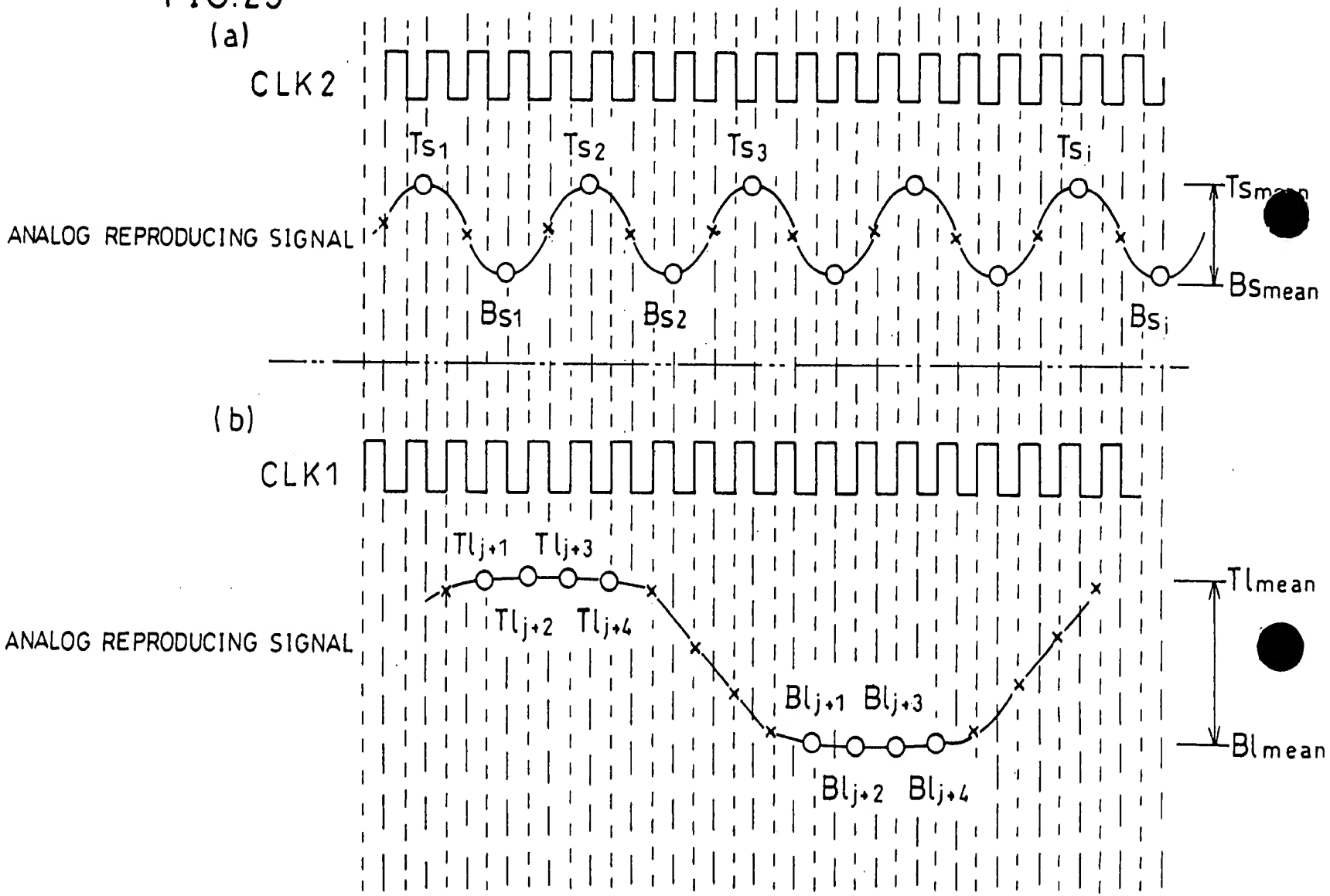

(a)
CLK2
Ts1
Ts2
Ts3
Tsi
Tsmean
ANALOG REPRODUCING SIGNAL
Bs1
Bs2
Bsi
Bsmean
(b)
CLK1
Tlj+1 Tlj+3
Tlj+2 Tlj+4
Tlmean
ANALOG REPRODUCING SIGNAL
Blj+1 Blj+3
Blj+2 Blj+4
Blmean

FIG. 26

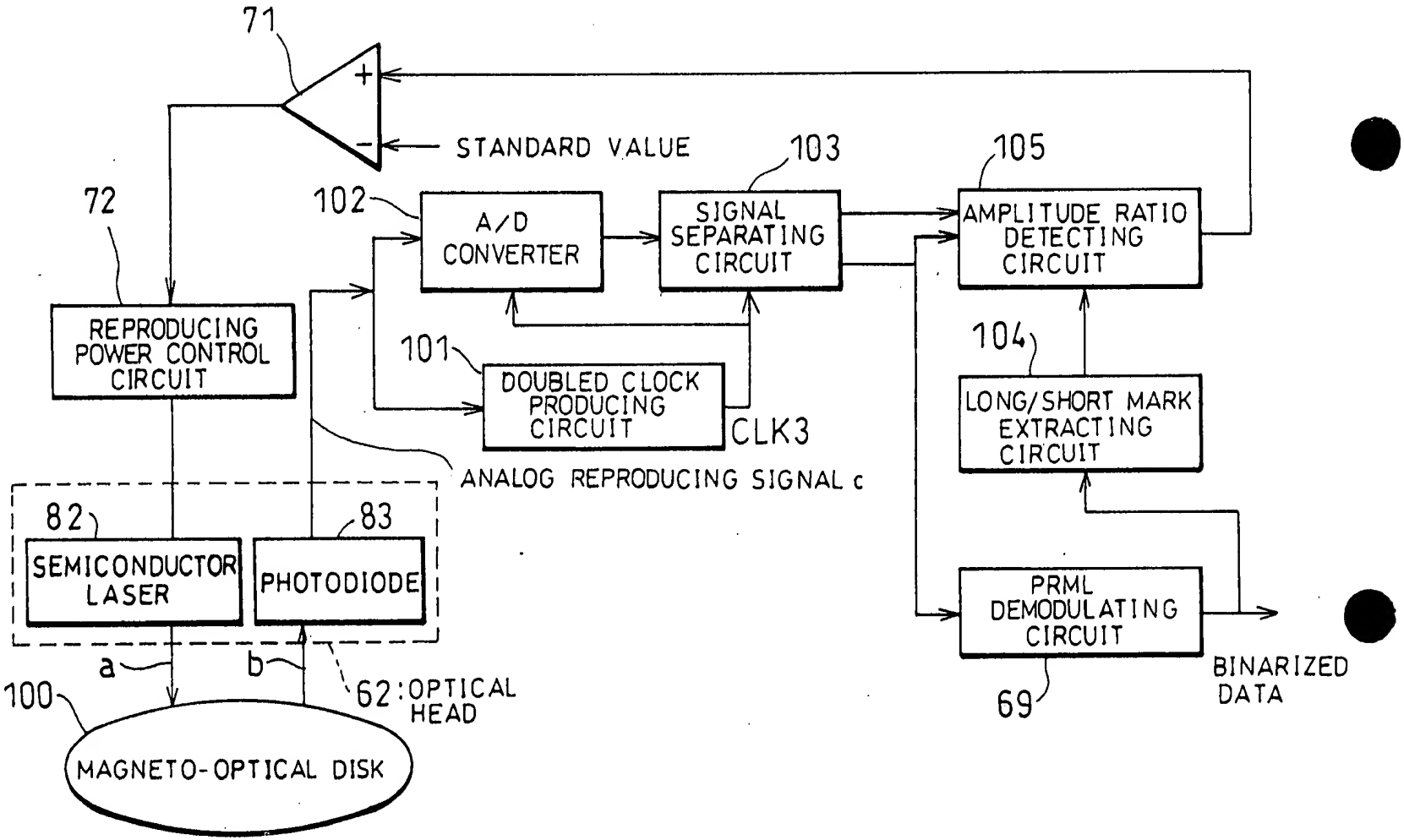

71
+
−
STANDARD VALUE
103
105
72
102
A/D CONVERTER
SIGNAL SEPARATING CIRCUIT
AMPLITUDE RATIO DETECTING CIRCUIT
REPRODUCING POWER CONTROL CIRCUIT
101
DOUBLED CLOCK PRODUCING CIRCUIT
CLK3
104
LONG/SHORT MARK EXTRACTING CIRCUIT
ANALOG REPRODUCING SIGNAL c
82
83
SEMICONDUCTOR LASER
PHOTODIODE
PRML DEMODULATING CIRCUIT
a
b
62:OPTICAL HEAD
100
MAGNETO-OPTICAL DISK
69
BINARIZED DATA

FIG. 27

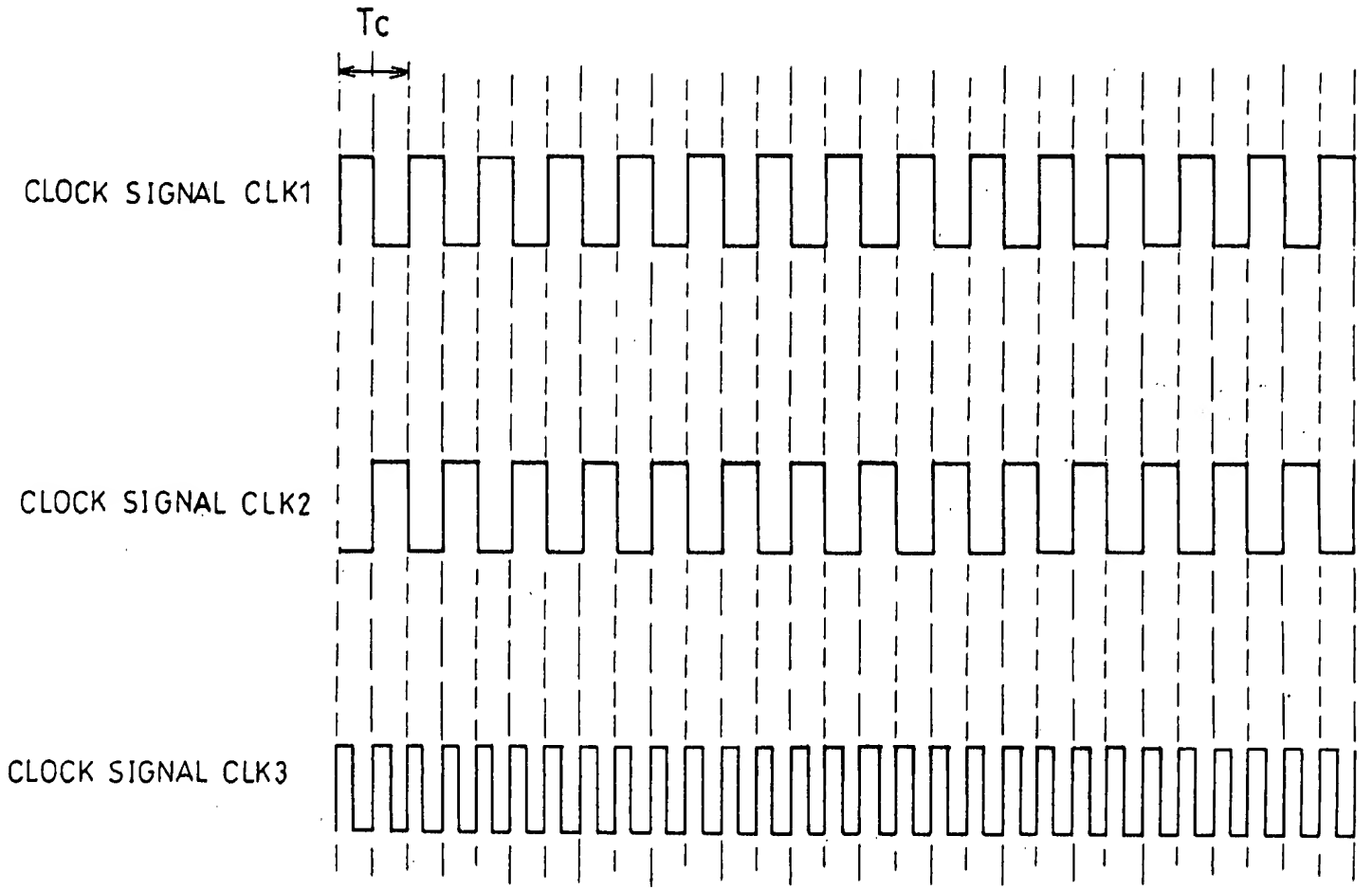
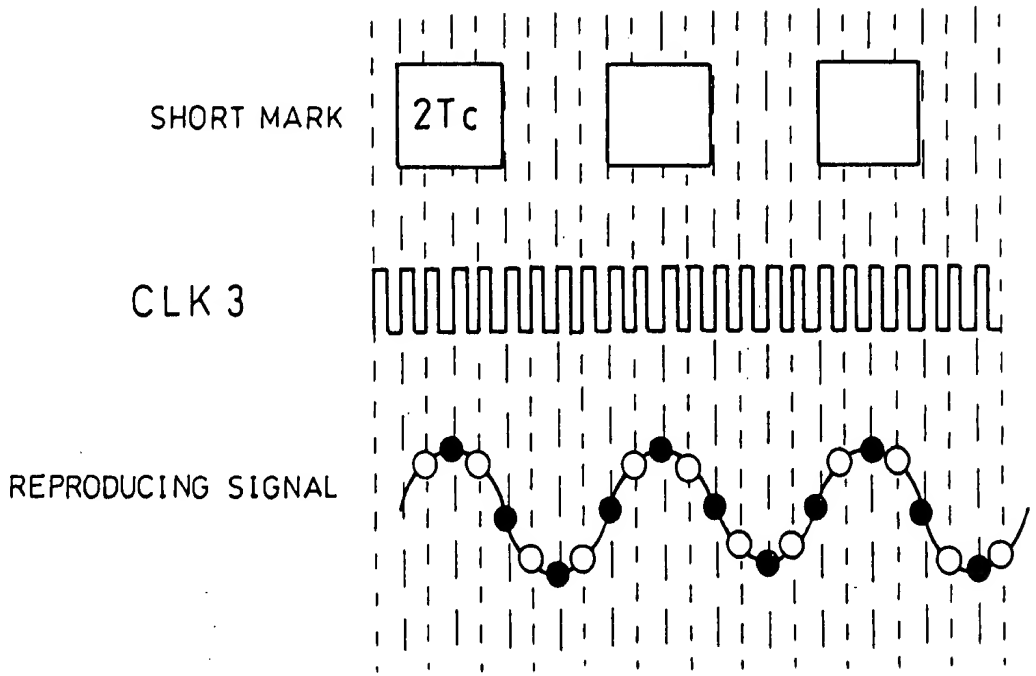


FIG.28



○ : PRML DETECTION SAMPLING POINT

● : PEAK DETECTION SAMPLING MARK FOR 2Tc MARK

FIG. 29

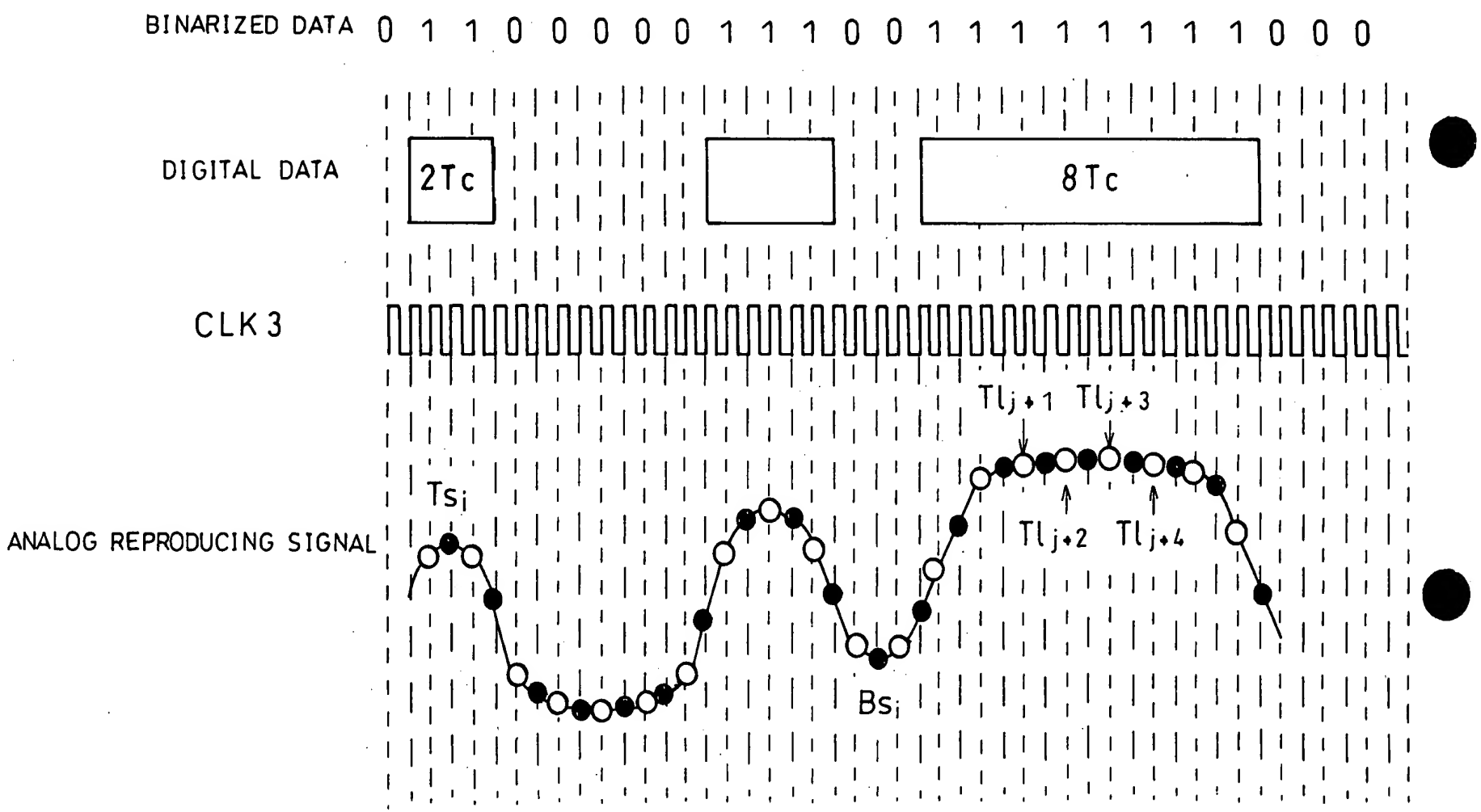

BINARIZED DATA 0 1 1 0 0 0 0 0 1 1 1 0 0 1 1 1 1 1 1 1 1 0 0 0
DIGITAL DATA
2Tc
8Tc
CLK 3
ANALOG REPRODUCING SIGNAL
Tsi
Bsi
Tlj+1
Tlj+3
Tlj+2
Tlj+4

FIG. 30

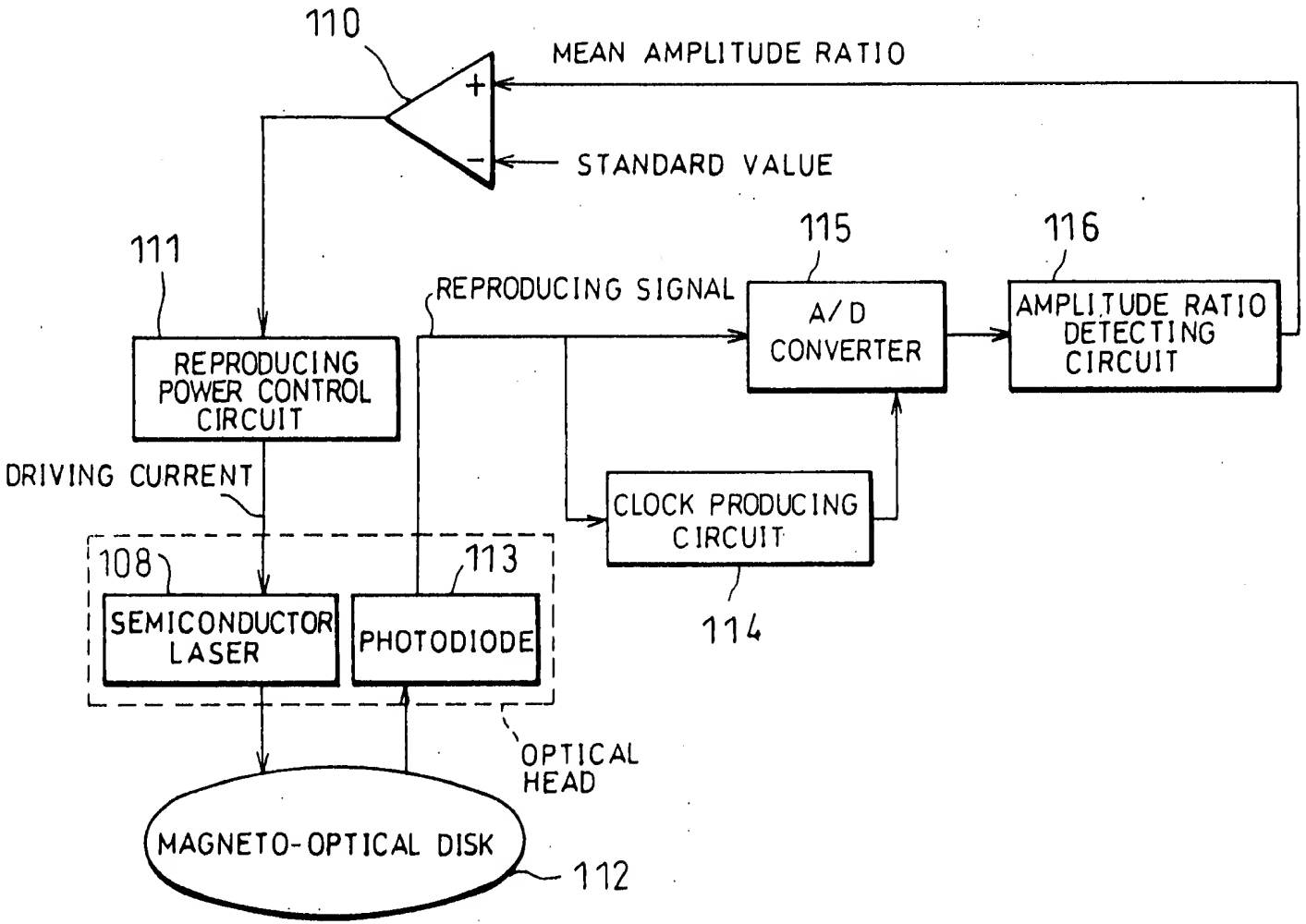


FIG. 31

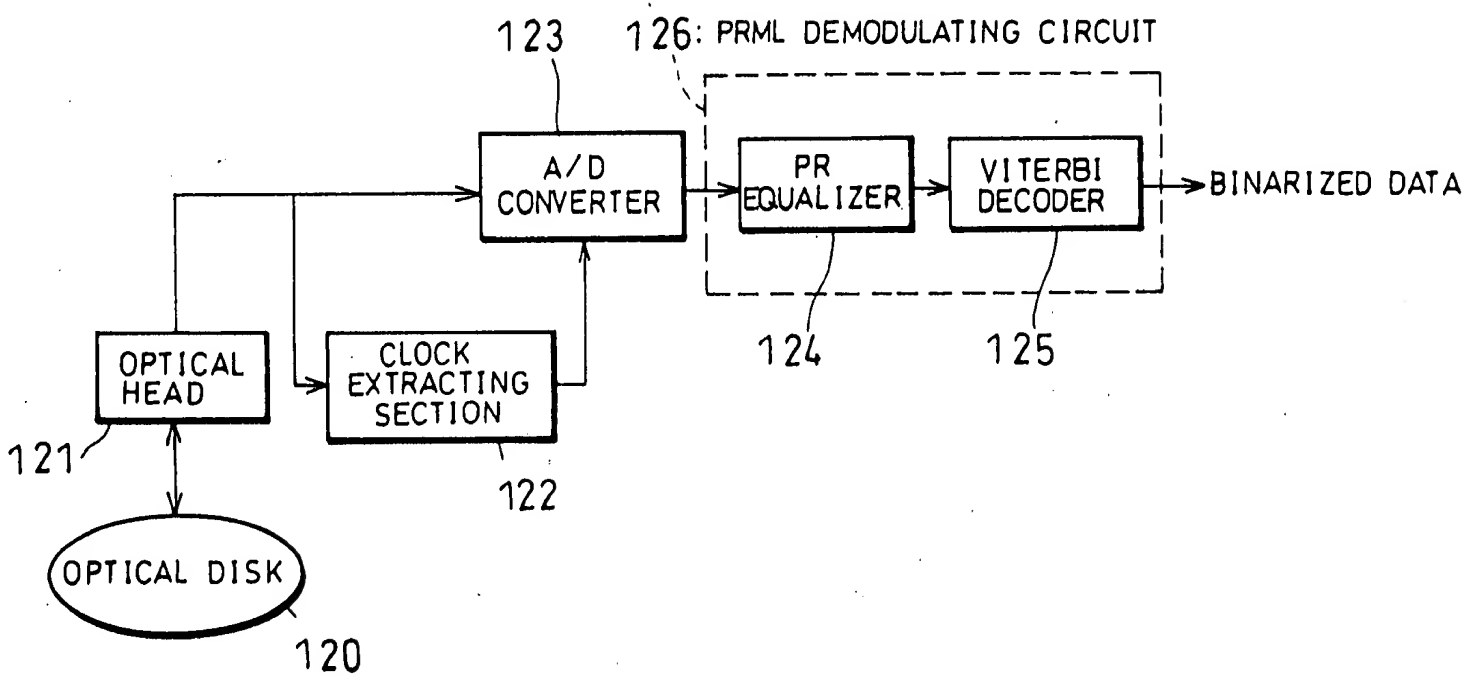
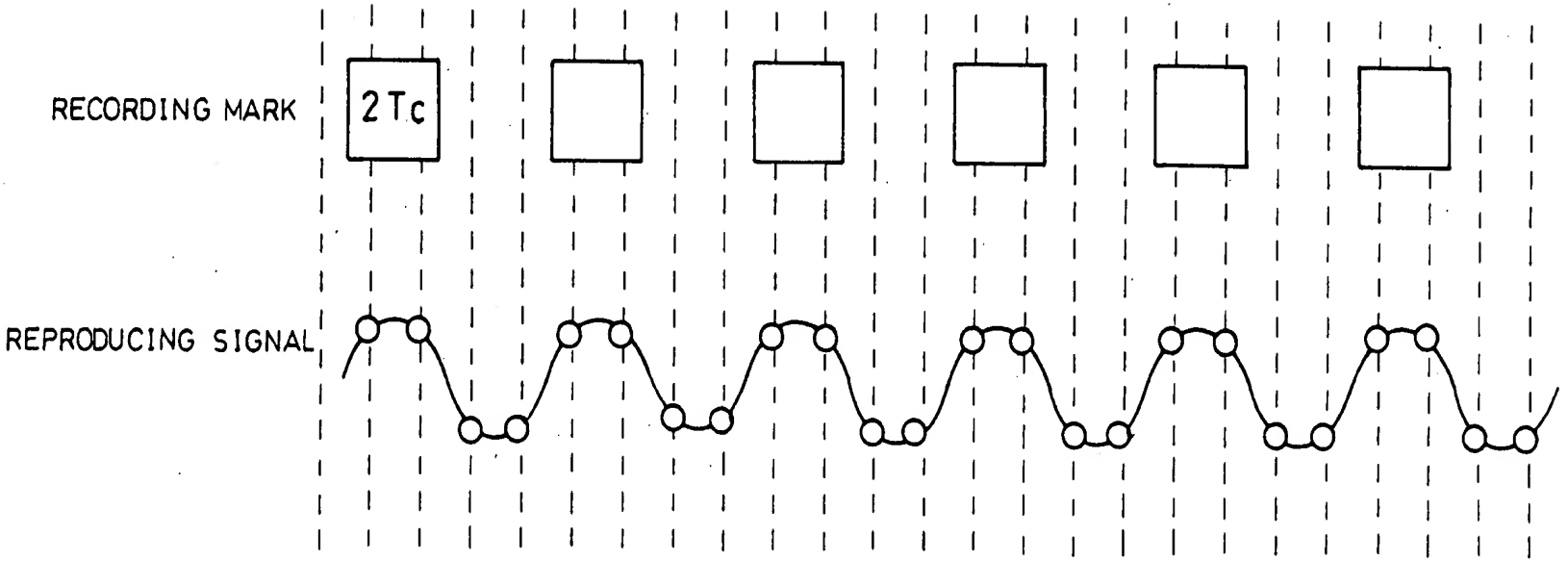

123
126: PRML DEMODULATING CIRCUIT
A/D CONVERTER
PR EQUALIZER
VITERBI DECODER
BINARIZED DATA
OPTICAL HEAD
CLOCK EXTRACTING SECTION
121
122
124
125
OPTICAL DISK
120

FIG. 32



○ : SAMPLING POINT IN PR(1, 2, 1)ML DETECTION

FIG. 33

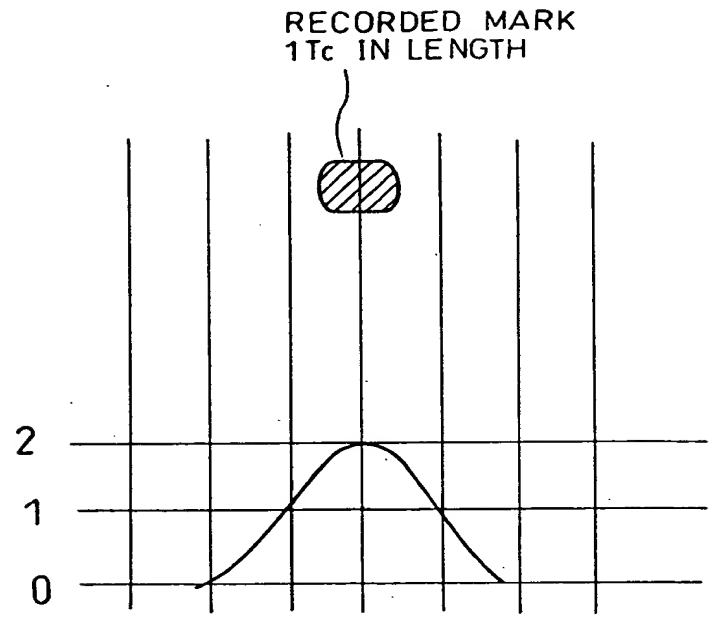
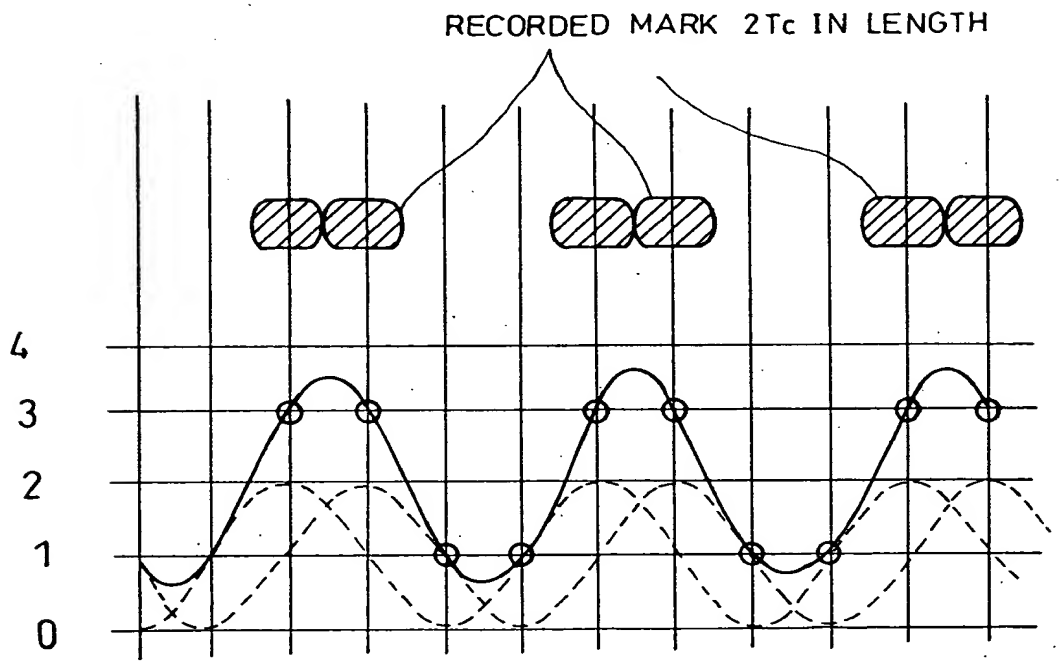

RECORDED MARK
1Tc IN LENGTH
2
1
0

FIG. 34


RECORDED MARK 2Tc IN LENGTH
4
3
2
1
0